

=> fil wpix

FILE 'WPIX' ENTERED AT 15:34:10 ON 20 SEP 2007

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FILE LAST UPDATED: 14 SEP 2007 <20070914/UP>

MOST RECENT THOMSON SCIENTIFIC UPDATE: 200759 <200759/DW>

DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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>>> Indian patent publication number format enhanced in DWPI - see NEWS <<  
<

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=> d his nofile

(FILE 'HOME' ENTERED AT 13:37:51 ON 20 SEP 2007)

FILE 'HCAPLUS' ENTERED AT 13:38:23 ON 20 SEP 2007

L1 1 SEA ABB=ON PLU=ON US2004184961/PN  
D IALL

FILE 'WPIX' ENTERED AT 13:38:56 ON 20 SEP 2007

L2 1 SEA ABB=ON PLU=ON US20040184961/PN  
D IFULL

L3 QUE ABB=ON PLU=ON OPTICAL?(2A) (FIBER? OR FIBRE? OR  
FIBRA?)

L4 QUE ABB=ON PLU=ON (INFRARED(W)RADIAT? OR IR) (3A) SENSOR?

L5 QUE ABB=ON PLU=ON (INFRARED(W)RADIAT? OR IR) (3A) (DETECT  
OR? OR METER# OR METRE# OR INDICATOR? OR RECORDER? OR  
ANALYZER? OR MONITOR?)

L6 QUE ABB=ON PLU=ON DIVID? OR SEPARAT?

L7 QUE ABB=ON PLU=ON INTERSECT?

L8 95 SEA ABB=ON PLU=ON L3 AND (L4 OR L5)

L9 13 SEA ABB=ON PLU=ON L8 AND (L6 OR L7)

L10 QUE ABB=ON PLU=ON DEVICE? OR APPARAT? OR APP## OR  
EQUIP? OR ASSEMBLY OR ASSEMBLIES

L11 8 SEA ABB=ON PLU=ON L9 AND L10

L12 QUE ABB=ON PLU=ON (INFRARED(W)RADIAT? OR IR) (3A) TRANSMI  
T?

L13 QUE ABB=ON PLU=ON FIBER? OR FIBRE? OR FIBRA?

L14 188 SEA ABB=ON PLU=ON L12 AND L13

L15 QUE ABB=ON PLU=ON CHEMICAL? OR COMPOUND?  
 L16 27 SEA ABB=ON PLU=ON L14 AND L15  
 L17 1 SEA ABB=ON PLU=ON L9 AND L16  
 L18 QUE ABB=ON PLU=ON (THERMAL? OR THERMOL?) (3A) SENSOR?  
 L19 QUE ABB=ON PLU=ON (THERMAL? OR THERMOL?) (3A) (DETECTOR?  
 OR METER# OR METRE# OR INDICATOR? OR RECORDER? OR  
 ANALYZER? OR MONITOR?)  
 L20 QUE ABB=ON PLU=ON (THERMAL? OR THERMOL?) (3A) SIGNAL?  
 L21 0 SEA ABB=ON PLU=ON L16 AND (L18 OR L19 OR L20)  
 L22 19 SEA ABB=ON PLU=ON L16 AND L3  
 L23 4 SEA ABB=ON PLU=ON L22 AND (L4 OR L5)  
 L24 1 SEA ABB=ON PLU=ON L22 AND (L6 OR L7)  
 L25 1 SEA ABB=ON PLU=ON L2 OR L17 OR L24  
 L26 11 SEA ABB=ON PLU=ON L11 OR L17 OR L23 OR L24

FILE 'HCAPLUS' ENTERED AT 14:46:21 ON 20 SEP 2007

L27 515 SEA ABB=ON PLU=ON L3 AND (L4 OR L5)  
 L28 19 SEA ABB=ON PLU=ON L27 AND (L6 OR L7)  
 L29 9 SEA ABB=ON PLU=ON L28 AND L10  
 L30 3 SEA ABB=ON PLU=ON L29 AND L15  
 L31 1 SEA ABB=ON PLU=ON (L29 OR L30) AND (L18 OR L19 OR L20)  
 L32 512 SEA ABB=ON PLU=ON L12 AND L13  
 L33 95 SEA ABB=ON PLU=ON L32 AND L15  
 L34 65 SEA ABB=ON PLU=ON L33 AND L3  
 L35 16 SEA ABB=ON PLU=ON L34 AND (L4 OR L5)  
 L36 3 SEA ABB=ON PLU=ON L35 AND (L6 OR L7)  
 L37 5 SEA ABB=ON PLU=ON L30 OR L31 OR L36  
 L38 6 SEA ABB=ON PLU=ON L29 NOT L37  
 L39 QUE ABB=ON PLU=ON END# OR TERMINA? OR TAIL?  
 L40 1 SEA ABB=ON PLU=ON L38 AND L39  
 L41 11 SEA ABB=ON PLU=ON L29 OR L37 OR L40  
 L42 6 SEA ABB=ON PLU=ON L37 OR L40

FILE 'COMPENDEX' ENTERED AT 15:06:06 ON 20 SEP 2007

L43 67 SEA ABB=ON PLU=ON L3 AND (L4 OR L5)  
 L44 1 SEA ABB=ON PLU=ON L43 AND (L6 OR L7)  
 L45 90 SEA ABB=ON PLU=ON L12 AND L13  
 L46 39 SEA ABB=ON PLU=ON L45 AND L15  
 L47 0 SEA ABB=ON PLU=ON L46 AND (L18 OR L19 OR L20)  
 L48 24 SEA ABB=ON PLU=ON L46 AND L3  
 L49 2 SEA ABB=ON PLU=ON L48 AND (L4 OR L5)  
 L50 3 SEA ABB=ON PLU=ON L48 AND (L6 OR L7)  
 L51 4 SEA ABB=ON PLU=ON L44 OR L49 OR L50

FILE 'ANABSTR' ENTERED AT 15:14:41 ON 20 SEP 2007

L52 23 SEA ABB=ON PLU=ON L3 AND (L4 OR L5)  
 L53 1 SEA ABB=ON PLU=ON L52 AND (L6 OR L7)  
 L54 15 SEA ABB=ON PLU=ON L12 AND L13  
 L55 2 SEA ABB=ON PLU=ON L54 AND L15  
 D  
 L56 3 SEA ABB=ON PLU=ON L53 OR L55

FILE 'JAPIO' ENTERED AT 15:17:48 ON 20 SEP 2007

L57 12 SEA ABB=ON PLU=ON L3 AND (L4 OR L5)  
 L58 1 SEA ABB=ON PLU=ON L57 AND (L6 OR L7)  
 L59 43 SEA ABB=ON PLU=ON L12 AND L13  
 L60 3 SEA ABB=ON PLU=ON L59 AND L15  
 D SCA  
 L61 4 SEA ABB=ON PLU=ON L58 OR L60

FILE 'PASCAL' ENTERED AT 15:20:35 ON 20 SEP 2007

L62 56 SEA ABB=ON PLU=ON L3 AND (L4 OR L5)  
 L63 2 SEA ABB=ON PLU=ON L62 AND (L6 OR L7)  
 D SCA  
 L64 41 SEA ABB=ON PLU=ON L12 AND L13  
 L65 1 SEA ABB=ON PLU=ON L63 AND L64  
 L66 9 SEA ABB=ON PLU=ON L64 AND L15  
 L67 7 SEA ABB=ON PLU=ON L66 AND L3  
 L68 0 SEA ABB=ON PLU=ON (L63 OR L65 OR L66 OR L67) AND (L18  
 OR L19 OR L20)  
 L69 2 SEA ABB=ON PLU=ON (L63 OR L65 OR L66 OR L67) AND (L4  
 OR L5)  
 L70 10 SEA ABB=ON PLU=ON L63 OR L65 OR L66 OR L67 OR L69  
 L71 2 SEA ABB=ON PLU=ON L70 AND L39  
 L72 10 SEA ABB=ON PLU=ON L70 OR L71

FILE 'WPIX' ENTERED AT 15:27:27 ON 20 SEP 2007  
 SEL L26 PN,APPS

FILE 'HCAPLUS' ENTERED AT 15:27:41 ON 20 SEP 2007

L73 6 SEA ABB=ON PLU=ON (DE1984-3408082/APPS OR DE1985-350608

FILE 'PASCAL' ENTERED AT 15:29:01 ON 20 SEP 2007

L74 QUE ABB=ON PLU=ON BIND?  
 L75 0 SEA ABB=ON PLU=ON (L66 OR L67) AND L74  
 L76 QUE ABB=ON PLU=ON SENSOR? OR DETECTOR? OR METER# OR  
 METRE# OR INDICATOR? OR RECORDER? OR ANALYZER? OR  
 MONITOR?  
 L77 5 SEA ABB=ON PLU=ON (L66 OR L67) AND L76  
 L78 8 SEA ABB=ON PLU=ON L63 OR L71 OR L77

FILE 'HCAPLUS' ENTERED AT 15:31:39 ON 20 SEP 2007

L79 5 SEA ABB=ON PLU=ON L42 NOT L73

FILE 'HCAPLUS, COMPENDEX, ANABSTR, JAPIO, PASCAL' ENTERED AT  
 15:32:55 ON 20 SEP 2007

L80 24 DUP REM L79 L51 L56 L61 L78 (0 DUPLICATES REMOVED)

=> d l26 ifull 1-11

L26 ANSWER 1 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2005-408238 [42] WPIX  
 DOC. NO. CPI: C2005-125733 [42]  
 DOC. NO. NON-CPI: N2005-331318 [42]  
 TITLE: Control system for controlling operation of  
 internal-combustion engine of motor vehicle,  
 includes sensor comprising infrared  
 spectrophotometer on board the motor vehicle  
 DERWENT CLASS: E36; H06; J04; Q52; Q51; S03; V07; X22  
 INVENTOR: PIZZI M  
 PATENT ASSIGNEE: (FIAT-C) CRF SCPA  
 COUNTRY COUNT: 34

# PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC
EP 1538323	A2 20050608	(200542)*	EN	11	[6]
US 20050120707	A1 20050609	(200542)	EN		

US 7143575 B2 20061205 (200680) EN

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 1538323	A2	EP 2004-22759	20040924
US 20050120707	A1	US 2004-976793	20041101
US 7143575	B2	US 2004-976793	20041101

PRIORITY APPLN. INFO: IT 2003-TO982 20031205

INT. PATENT CLASSIF.:

IPC ORIGINAL: F01N0003-00 [I,A]; F01N0003-00 [I,C]; F02D0041-00 [I,A]; F02D0041-00 [I,C]; F02D0041-14 [I,A]; F02D0041-14 [I,C]; G01J0003-42 [I,A]; G01J0003-42 [I,C]; G01M0015-00 [I,A]; G01M0015-00 [I,C]; G01N0021-31 [I,C]; G01N0021-35 [I,A]

IPC RECLASSIF.: F02D0041-00 [I,A]; F02D0041-00 [I,C]; F02D0041-14 [I,A]; F02D0041-14 [I,C]; G01J0003-00 [I,C]; G01J0003-04 [I,A]; G01J0003-06 [I,A]; G01J0003-42 [I,A]; G01J0003-42 [I,C]; G01M0015-04 [I,C]; G01M0015-10 [I,A]

## BASIC ABSTRACT:

EP 1538323 A2 UPAB: 20051222

NOVELTY - A control system for controlling operation of an internal-combustion engine of a motor vehicle, has a sensor comprising infrared spectrophotometer on board the motor vehicle.

DETAILED DESCRIPTION - A control system for controlling operation of an internal-combustion engine (1) of a motor vehicle, comprises electronic control devices (2) which affect running of the engine. A sensor (4) is provided for detecting the composition of the exhaust gases of the engine. An electronic control unit (6) is provided for controlling the operation of the electronic devices according to the signals at output from the sensor. The sensor comprises an infrared (IR) spectrophotometer on board the motor vehicle.

USE - For controlling operation of an internal-combustion engine (claimed) of a motor vehicle.

ADVANTAGE - The inventive control system can reduce the environmental impact of motor vehicles with internal-combustion engines and, at the same time, reduce the fuel consumption. DESCRIPTION OF DRAWINGS - The figure is a block diagram of the inventive control system.

Internal-combustion engine (1) Electronic control devices (2) Sensor (4) Signals (5, 7)

Electronic control unit (6) TECHNOLOGY FOCUS:

MECHANICAL ENGINEERING - Preferred Component: The IR spectrophotometer is of the type using electrostatic micro-shutters. It comprises a light source, a separator for separating the light beam emitted by the source into the components corresponding to the different wavelengths, a sensor designed to receive the radiation coming from the separator and to emit at output electrical signals indicating the wavelengths of the radiation received, in which the electrostatic micro-shutters are set between the separator and the sensor. The sensor is formed by a single photodiode. The spectrophotometer further comprises an optical element for converging the radiation at output from the electrostatic micro-shutters into the single photodiode. The electrostatic-shutter is controlled to select each time a single wavelength to be analyzed. The electrostatic micro-shutters are arranged in a matrix array in a plane perpendicular to the direction of the light, and each one comprises a petal having one end fixed on top of a

substrate and designed to adhere by electrostatic effect to the substrate when a potential difference is applied between a conductor film functioning as electrode associated to the petal and a conductor film functioning as electrode associated to the substrate. **Optical-fiber** guide mechanism is associated to each cylinder of the engine to enable detection of the composition of the gases present in the combustion chamber of each cylinder of the engine. The sensor also comprises a lambda-sensor for detecting the oxygen present in the exhaust gases..

FILE SEGMENT: CPI; GMPI; EPI  
 MANUAL CODE: CPI: E11-Q03C; E31-D02; H06-C05; J04-B01A  
 EPI: S03-E04A5B; S03-E04A5G; V07-K01B; X22-A03F;  
 X22-A05X

L26 ANSWER 2 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2004-698044 [68] WPIX  
 DOC. NO. CPI: C2004-246858 [68]  
 DOC. NO. NON-CPI: N2004-553458 [68]  
 TITLE: **Chemical** entities investigating **apparatus** comprises **sensor** for sensing **infrared radiation** and being in **infrared radiation-sensing** contact with first end of each of **optical fibers**  
 DERWENT CLASS: B04; D16; J04; S03; V07  
 INVENTOR: FEYGIN I  
 PATENT ASSIGNEE: (FEYG-I) FEYGIN I  
 COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 20040184961	A1	20040923	(200468)*	EN	7[6]	

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 20040184961	A1	Provisional	US 2003-443824P 20030130
US 20040184961	A1		US 2004-769220 20040130

PRIORITY APPLN. INFO: US 2004-769220 20040130  
 US 2003-443824P 20030130

INT. PATENT CLASSIF.:  
 IPC RECLASSIF.: G01N0021-31 [I,C]; G01N0021-35 [I,A]

## BASIC ABSTRACT:

US 20040184961 A1 UPAB: 20050706  
**NOVELTY** - **Chemical** entities investigating **apparatus** comprises **optical fibers** each having two ends (104, 106), and capable of **transmitting infrared radiation (IR); sensor** for sensing **IR**, and being in **IR-sensing** contact with the first end of each of the **optical fibers**; and **separator** (110) that engages the **fibers** and is for **spatially separating** the **optical fibers**.  
**DETAILED DESCRIPTION** - **Chemical** entities investigating **apparatus** comprises **optical fibers** each having two ends (104, 106), and capable of **transmitting infrared radiation (IR); sensor** for sensing **IR**, and being in **IR-sensing** contact with the first end of each of the **optical fibers**; and **separator** (110) that engages the **fibers** and is for

spatially separating the optical fibers in a pattern that enables the optical fibers to engage individual samples on a sample plate.

USE - For investigating chemical entities (claimed).

ADVANTAGE - The apparatus is simple, low-cost, and provides high throughput. It is capable of monitoring binding interactions and obtaining the data required for identifying unknown chemical entities. It does not require special assay development and labeling.

DESCRIPTION OF DRAWINGS - The figure depicts the inventive apparatus.

Optical fibers (102)

Ends (104, 106)

Sensor (108)

Separator (110)

#### TECHNOLOGY FOCUS:

INSTRUMENTATION AND TESTING - Preferred Components: The second end of the optical fibers is physically adapted to receive a first chemical entity. The individual samples comprise a first chemical entity. The apparatus further comprises a surface having a binding compound. The first end of the optical fibers (102) is physically coupled to the sensor (108).

FILE SEGMENT: CPI; EPI

MANUAL CODE: CPI: B11-C07B2; B12-K04E; D05-H09; J04-C02  
EPI: S03-E04E; V07-N01

L26 ANSWER 3 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN  
ACCESSION NUMBER: 2000-105256 [09] WPIX  
DOC. NO. CPI: C2000-031454 [09]  
DOC. NO. NON-CPI: N2000-080883 [09]  
TITLE: Sensor specific to hydrogen gas comprises rare earth metal thin film  
DERWENT CLASS: E36; J04; S03; U12  
INVENTOR: BAUM T H; BHANDARI G  
PATENT ASSIGNEE: (ADTE-N) ADVANCED TECHNOLOGY MATERIALS  
COUNTRY COUNT: 1

#### PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 6006582	A	19991228	(200009)*	EN	24	[9]

#### APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 6006582	A	US 1998-42698	19980317

PRIORITY APPLN. INFO: US 1998-42698 19980317

INT. PATENT CLASSIF.:

IPC RECLASSIF.: G01N0021-77 [I,A]; G01N0021-77 [I,C]; H01L0043-00 [I,C]; H01L0043-10 [I,A]

#### BASIC ABSTRACT:

US 6006582 A UPAB: 20060115

NOVELTY - Sensor for hydrogen includes a rare earth metal thin film which exhibits detectable change in a physical property when exposed to hydrogen gas.

DETAILED DESCRIPTION - The sensor comprises: (i) A film comprising one or more of the rare earths comprising Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Ac, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, Lr and alloys with one or more of Mg, Ca, Ba, Sr, Co and Ir, which is exposed to the gaseous environment and exhibits a change in a physical property in response to the

hydrogen, (ii) The means and circuitry to exhibit the change in physical property. The sensor does not include a hydrogen source arranged to selectively switch the thin film between switched states.

INDEPENDENT CLAIMS are included for: (1) A hydrogen gas detection system for monitoring an extended or remote region such that a multiplicity of sensors is located in specific sectors of the region. (2) A method of detecting hydrogen using the sensor which generates a signal indicative of the hydrogen in the environment. (3) A sensor as above which continuously monitors hydrogen wherein the thin film forms a hydride in response to the hydrogen concentration. (4) A method of continuously monitoring hydrogen concentration wherein the thin film forms a hydride to change a physical property, and wherein there is an output indicative of the hydrogen concentration.

USE - The sensor is used for detecting hydrogen e.g. in the production of ammonia, methanol, ethanol, aniline and hydrogen chloride, hydroforming, hydrocracking and hydrotreating of petroleum, hydrogenation, reduction of metallic ores, space flight propulsion systems, and microelectronic processing.

ADVANTAGE - The formation of hydride species to induce physical changes provides a sensor specific to hydrogen whereas prior systems have been based on oxidation processes which detect also other reducible species.

#### TECHNOLOGY FOCUS:

##### INSTRUMENTATION AND TESTING - Preferred sensor and method:

The physical property is optical transmissivity, electrical resistance, magneto-resistance or photoconductivity, and an output **assembly** converts the physical change into a visual, auditory or tactile output. The physical property changes from optical opacity to transparency or from metallic to semiconducting state; or, the sensor includes an electrical resistance monitor for the thin film to detect hydrogen. The film consists of a trivalent rare earth which reacts to form both dihydride and trihydride which have differing physical properties. The film is essentially yttrium, and the change is from a reflecting dihydride metallic state to a transparent trihydride, semiconducting state; when the hydrogen is removed there is an isothermal reversal. The film is overlaid by a hydrogen-permeable material comprising (i) Pd, Pt, Ir, Mg, Ca, Ag, Au, Co or alloys thereof, (ii) a hydrogen-permeable material doped with Mg, Ca, Al, Ir or Co, or (iii) Pd, Pt or Ir, or the film is overlaid with a hydrogen-permeable protective layer comprising alternating doped and undoped material layers wherein the doped layers are Pd, Pt or Ir containing Mg or Al and the undoped layers are Pd, Pt or Ir. In a **sensor** for continuous monitoring. The film is applied to one end of an **optical fiber** where the second end is coupled to a signal generating and processing **assembly** comprising a light source and a light detector for reflected light as an optical transmissivity signal to generate signal indicative of hydrogen concentration; the fiber is clad along its length and is branched at the **assembly** end with branches **separately** coupled to the light source and the detector. The light source is a light emitting diode, the film comprises yttrium and has a hydrogen-permeable protective overlayer comprising palladium or alternating doped and undoped layers. Preferred detection system: Different properties are detected when multiple sensors are contacted with hydrogen at different locations. The metal film is 50 - 2000 nm thick and has a 2 - 1000nm thick protective overlayer.

#### EXTENSION ABSTRACT:

WIDER DISCLOSURE - The film is exposed to hydrogen and a predetermined voltage is applied to the film to switch between window and non-window states in either signal processing or as a structural member.

EXAMPLE - Strips of rare earth metal films were placed in a 1 inch diameter quartz CVD tube and exposed to 700 torr hydrogen. The color turned yellowish in 2 - 3

minutes indicating conversion of Y to YH2 and a minute thereafter the film changed from opaque to transparent. There was an immediate loss of transparency when the hydrogen was withdrawn.

FILE SEGMENT: CPI; EPI  
 MANUAL CODE: CPI: E31-A03; J04-C04  
 EPI: S03-E04; S03-E09C; S03-E12; U12-B02A

L26 ANSWER 4 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 1999-143124 [12] WPIX  
 DOC. NO. NON-CPI: N1999-103943 [12]  
 TITLE: Variable step optoelectronic device for  
 analysing very short electrical signal - has  
 propagation line with number of photodetectors  
 successively illuminated by laser beam and  
 cooperating with equal number of optical  
 fibres  
 DERWENT CLASS: S01; S02; V07  
 INVENTOR: CUZIN M; GENTET M; GENTET M C  
 PATENT ASSIGNEE: (COMS-C) COMMISSARIAT ENERGIE ATOMIQUE  
 COUNTRY COUNT: 20

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 9905534	A1	19990204	(199912)*	EN	44	[18]
FR 2766576	A1	19990129	(199912)	FR		
EP 998679	A1	20000510	(200027)	FR		
US 6320367	B1	20011120	(200174)	EN		

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9905534	A1	WO 1998-FR1604	19980721
FR 2766576	A1	FR 1997-9363	19970723
EP 998679	A1	EP 1998-940297	19980721
EP 998679	A1	WO 1998-FR1604	19980721
US 6320367	B1	WO 1998-FR1604	19980721
US 6320367	B1	US 2000-463545	20000403

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 998679	A1	WO 9905534 A
US 6320367	B1	WO 9905534 A

PRIORITY APPLN. INFO: FR 1997-9363 19970723

INT. PATENT CLASSIF.:

IPC RECLASSIF.: G01R0013-22 [N,C]; G01R0013-34 [N,A]; G01R0019-00  
 [N,A]; G01R0019-00 [N,C]; G01R0029-02 [I,A];  
 G01R0029-02 [I,C]

## BASIC ABSTRACT:

WO 1999005534 A1 UPAB: 20060115  
 NOVELTY - The device has a number of optical fibres whose extremities are positioned opposite an equal number of photodetectors. The photodetectors are separated by a gap of same size which determines the device sensitivity. A lens is positioned between the fibre extremity and the corresponding photodetector. The

photodetectors are placed along a propagation line and successively illuminated by a laser beam.

USE - For analysing electrical signals generated by fast radiation detectors, e.g. X-ray, gamma or IR detectors.

ADVANTAGE - Can be used to analyse very short non-repetitive electrical signals.

Has simplified structure and optical system with increased efficiency. Has optical interface which reduces spatial instabilities.

FILE SEGMENT: EPI

MANUAL CODE: EPI: S01-D06; S02-K03B1; V07-G04; V07-K

L26 ANSWER 5 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

ACCESSION NUMBER: 1999-069538 [06] WPIX

DOC. NO. NON-CPI: N1999-050979 [06]

TITLE: Centrifugal finisher for nose cones on weapons - includes drive unit that rotates inner vessels about central axis of outer vessel using intermediate rollers that move along inner surface of outer vessel

DERWENT CLASS: P61

INVENTOR: HOFFMAN S E

PATENT ASSIGNEE: (HTEC-N) H TECHNOLOGY

COUNTRY COUNT: 1

#### PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 5848929	A	19981215	(199906)*	EN	40	[34]

#### APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 5848929	A	US 1997-823515	19970324

PRIORITY APPLN. INFO: US 1997-823515 19970324

INT. PATENT CLASSIF.:

IPC RECLASSIF.: B24B0031-00 [I,C]; B24B0031-033 [I,A]; B24B0031-108 [I,A]

#### BASIC ABSTRACT:

US 5848929 A UPAB: 20060114 The centrifugal finisher (200) includes a fixed outer vessel (224) and a set of inner vessels positioned inside the outer vessel. The object to be finished are accommodated in the inner vessels. A set of intermediate rollers (250) are positioned between the inner surface of the outer vessel and the outer surface of the inner vessel. The intermediate roller includes a guide groove (290) that engages the guide rail of the outer vessel. A drive unit rotates the inner vessels about the central axis of the outer vessel using intermediate rollers that move along the inner surface of the outer vessel. The drive unit includes and rotor arms (348), at the ends of which a drive roller (352) is mounted. The drive roller is in contact with the outer surface of the inner vessel and biases the inner vessel against the intermediate roller.

USE - For domes and windows, gem stones, orifice for air and liquid metering, nozzles for printing pen tips, guide wires, windows for high temperature and corrosive environment probes for measuring instrument, magnetic tapes, cleaning blades, pistons, ball check valves for metering pumps and dispenser, water jet cutting orifices and nozzles, fiber optic connectors, fiber optic lens, optical fiber sliding tips, gauge contact point, chemical and medical valves, stylus tips, apertures for particle counting, restrictors, torch tips, air bearings, air craft instrumentation, medical implant devices, gyroscopes, laser optics mirrors and lenses, substrates for epitaxial deposition of semiconductor electronics, IR

transmitting sensor windows used on aircraft, quartz crystal in watches, telescopic mirrors, jet turbine blades.

ADVANTAGE - Finishes surface of object by contact with abrasive pieces caused by centrifugal and rotational forces. Enables polishing and finishing of larger objects by using outer vessel of large diameter. Avoids use of traction surface. Provides desired surface hardening characteristics without damaging object. Enhances optical clarity and strength of lens of missile cones. Removes minute deformities and prevents fluctuation of object to be finished.

FILE SEGMENT: GMPI

L26 ANSWER 6 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 1998-250565 [22] WPIX  
 DOC. NO. CPI: C1998-078108 [22]  
 DOC. NO. NON-CPI: N1998-197805 [22]  
 TITLE: Remote, in-situ infrared spectroscopy of soils and soil-liquid mixtures - in the 2-12 micron wavelength range, the fibre optic IR spectroscopy used with a cone penetrometer to identify and quantify organic contaminants in soil  
 DERWENT CLASS: C07; J04; S02; S03  
 INVENTOR: AGGARWAL I D; BUCHOLTZ F; EWING K J; NAU G; SANGHERA J S  
 PATENT ASSIGNEE: (USNA-C) US SEC OF NAVY  
 COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 5739536	A	19980414	(199822)*	EN	16	[17]

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 5739536 A		US 1995-572389	19951214

PRIORITY APPLN. INFO: US 1995-572389 19951214

INT. PATENT CLASSIF.:

IPC RECLASSIF.: G01J0003-00 [I,C]; G01J0003-02 [I,A]; G01J0003-10 [I,A]; G01J0003-42 [I,A]; G01J0003-42 [I,C]; G01N0033-24 [I,A]; G01N0033-24 [I,C]; G01V0008-00 [I,C]; G01V0008-02 [I,A]; G01V0009-00 [I,A]; G01V0009-00 [I,C]

BASIC ABSTRACT:

US 5739536 A UPAB: 20060114 System for in-situ, subsurface soil measurement of chemicals, including water, in soil, comprises: (a) a probe for penetrating the soil, the probe including interior and exterior surfaces, and a window for allowing IR radiation within a wavelength range of 2-12  $\mu$ m to be transmitted between the interior and exterior surfaces of the probe; (b) means for driving the probe into the soil to several different depths; (c) means for providing IR radiation within the wavelength range of 2-12  $\mu$ m which radiation passes through the window to irradiate the soil adjacent the window; (d) an IR transmitting chalcogenide optical fibre; (e) optical means within the probe adjacent to the window for transmitting IR radiation from the providing means through the window into the soil and for collecting IR radiation within about the 2-12  $\mu$ m wavelength range reflected from the soil back through the window into a first end of the chalcogenide optical fibre, and (f) means coupled to a second end of the IR transmitting chalcogenide optical fibre for receiving and analysing the reflected

IR radiation passing through the **optical fibre** to obtain information on **chemicals** present at various depths of the soil through which the probe passes.

USE - The method is used for remote, in-situ infrared spectroscopy of soils and soil-liquid mixtures.

ADVANTAGE - The **fibre optic IR spectroscopy** is used with a cone penetrometer, in the 2-12  $\mu\text{m}$  wavelength range, to identify and quantify organic contaminants in soil, the optical radiation in the 2-12  $\mu\text{m}$  wavelength range being **transmitted** via an **IR-transmitting optic fibre** to an **optical system** in a cone penetrometer.

#### DOCUMENTATION ABSTRACT:

US5739536

System for in situ, sub-surface soil measurement of **chemicals**, including water, in soil, comprises:

(a) a probe for penetrating the soil, the probe including interior and exterior surfaces, and a window for allowing IR radiation within a wavelength 2-12  $\mu\text{m}$  to be transmitted between the interior and exterior surfaces of the probe;

(b) means for driving the probe into the soil to several different depths;

(c) means for providing IR radiation within the wavelength 2-12  $\mu\text{m}$  which radiation passes through the window to irradiate the soil adjacent the window;

(d) an **IR transmitting chalcogenide optical fibre**;

(e) optical means within the probe adjacent to the window for **transmitting IR radiation** from the providing means through the window into the soil and for collecting IR radiation within about the 2-12  $\mu\text{m}$  wavelength reflected from the soil back through the window into a first end of the **chalcogenide optical fibre**, and

(f) means coupled to a second end of the **IR transmitting chalcogenide optical fibre** for receiving and analysing the reflected IR radiation passing through the **optical fibre** to obtain information on **chemicals** present at various depths of the soil through which the probe passes.

#### USE

The apparatus is used for remote, in situ infrared spectroscopy of soils and soil-liquid mixtures.

#### ADVANTAGE

The **fibre optic IR spectroscopy** is used with a cone penetrometer, in the 2-12  $\mu\text{m}$  wavelength range, to identify and quantify organic contaminants in soil, the optical radiation in the 2-12  $\mu\text{m}$  wavelength range being **transmitted** via an **IR-transmitting optic fibre** to an **optical system** in a cone penetrometer.

#### PREFERRED SYSTEM

The probe is a cone penetrometer and a reflector is provided having  $\geq 1$  focal point and an IR source at the focal point for providing the IR radiation. The radiation providing means includes an IR source, and there is an optical assembly of transmission/collection optics operating over a wavelength 2-12  $\mu\text{m}$  for **transmitting IR radiation** from the source to the soil and for collecting radiation reflected from the soil.

The analyser is a spectrometer. The **IR transmitting chalcogenide optical fibre** has an attenuation of  $\leq 1$  dB/m within the wavelength range

of 2-12  $\mu$ m. (TC)

FILE SEGMENT: CPI; EPI  
 MANUAL CODE: CPI: C11-C01; C11-C07B2; C12-K04; J04-B01C  
 EPI: S02-K08A; S03-D06; S03-E04A5B; S03-E04A5S;  
 S03-E14E7

L26 ANSWER 7 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 1996-117345 [13] WPIX  
 DOC. NO. NON-CPI: N1996-098127 [13]  
 TITLE: Boiler cleanliness determining appts. for  
 recovery boiler and power plant - has extendable  
 arm, e.g. soot blower or lance, on which is  
 provided multiple IR sensors  
 connected to computer via monitor  
 DERWENT CLASS: Q72; S03  
 INVENTOR: MOSKAL T E  
 PATENT ASSIGNEE: (BABW-C) BABCOCK & WILCOX CO; (DIAM-N) DIAMOND  
 POWER INT' INC  
 COUNTRY COUNT: 5

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
AU 9527161	A	19960208	(199613)*	EN	33	[10]
CA 2154537	A	19960126	(199621)	EN		
US 5615953	A	19970401	(199719)	EN	14	[10]
NZ 272587	A	19980226	(199813)	EN		
AU 696989	B	19980924	(199850)	EN		
MX 193632	B	19991007	(200101)	ES		

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
AU 9527161	A	AU 1995-27161	19950725
US 5615953	A	US 1994-279736	19940725
NZ 272587	A	NZ 1995-272587	19950717
CA 2154537	A	CA 1995-2154537	19950724
MX 193632	B	MX 1995-3195	19950724
AU 696989	B	AU 1995-27161	19950725

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 696989	B	Previous Publ AU 9527161 A

PRIORITY APPLN. INFO: US 1994-279736 19940725

INT. PATENT CLASSIF.:

MAIN: G01N025-000

IPC RECLASSIF.: G01N025-72 [I,A]; G01N0025-72 [I,C]

## BASIC ABSTRACT:

AU 9527161 A UPAB: 20060111 The appts. includes an extension arm, several infra-red non-contact sensors, and a computer. The IR sensors are provided along the length of the extension arm, e.g. a lance or a soot blower. The computer is linked to a monitor which receives data from the IR sensors. The arm is extendable into the boiler near its tubes and separate temperature readings are taken along the length of the arm. Based on the readings, the computer can determine the build up

on the tubes. Optical fibres may also be used to direct radiation to the IR sensors. Viewing of the boiler inside is permitted through use of a video camera. USE/ADVANTAGE - Provides before and after assessments once various cleaning innovations are demonstrated in power and recovery boiler tube banks. Is portability with immediate readout. Avoids biases associated with time varying aspects of boiler operation.

FILE SEGMENT: GMPI; EPI  
MANUAL CODE: EPI: S03-A03; S03-BC1D; S03-B01E

L26 ANSWER 8 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN  
ACCESSION NUMBER: 1993-329063 [42] WPIX  
DOC. NO. NON-CPI: N1993-254054 [42]  
TITLE: Target detection device for low-flying aircraft - uses sensors associated with separate airborne body, e.g. missile, coupled to aircraft via flexible cable with relative position correction of sensor signals, i.e. optical fibre carries targetting data to missile  
DERWENT CLASS: Q25; Q79; W06; W07  
INVENTOR: FRIESE D  
PATENT ASSIGNEE: (DAIM-C) DEUT AEROSPACE AG  
COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
DE 4238521	C1	19931021	(199342)*	DE	4 [2]	

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 4238521	C1	DE 1992-4238521	19921114

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 4238521	C1	DE 4126354 A

PRIORITY APPLN. INFO: DE 1992-4238521 19921114

INT. PATENT CLASSIF.:

IPC RECLASSIF.: F41G0003-00 [I,C]; F41G0003-02 [I,A]; F41G0003-14 [I,A]

## BASIC ABSTRACT:

DE 4238521 C1 JPAB: 20050510 The detection device includes sensors operating in different spectral ranges incorporated in, or attaching to, a separate body (11) secured to the aircraft (100) via a high tension cable (12), with an optical fibre coupling path between the sensors and an evaluation device onboard the aircraft. The effect of the independent movement of the body on the sensor signals is corrected by continuously detecting its angular position relative to the aircraft and supplying the position data to the evaluation device. The missile has an onboard computer processing the received targetting data. Pref. an IR or microwave sensor (10), is used to detect the ground target and an additional IR sensor is used to track the aircraft (100). USE/ADVANTAGE - Improved targetting system for air-launched missile.

FILE SEGMENT: GMPI; EPI  
MANUAL CODE: EPI: W06-B01B1; W07-B

L26 ANSWER 9 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 1990-009701 [02] WPIX  
 TITLE: Passive IR movement detector  
 for room surveillance system - with  
 optical fibre coupling between  
 optical fibre bundle receiving IR  
 radiation and central device  
 DERWENT CLASS: S03; V07; W05  
 INVENTOR: DENKE F; ROSNER B  
 PATENT ASSIGNEE: (ALLM-C) ASEA BROWN BOVERI AG  
 COUNTRY COUNT: 11

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 349936	A	19900110	(199002)*	DE	4[1]	

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 349936 A		EP 1989-112053	19890701

PRIORITY APPLN. INFO: DE 1988-8644 19880706

INT. PATENT CLASSIF.:

IPC RECLASSIF.: G08B0013-189 [I,C]; G08B0013-193 [I,A]

## BASIC ABSTRACT:

EP 349936 A UPAB: 20050429 The IR movement detector has at least one optical element (1) and an associated IR sensor coupled to a central device (6) for amplification and evaluation of the received signals and incorporating the operating current supply.

Each optical element (1) comprises a hemispherical surface defined by the adjacent end faces of an IR optical fibre bundle (4) and is located within a given room zone, the central device (6) located in a separate room zone (3), with an optical fibre coupling (7) between each optical element (1) and the central device (6). Pref. the detection characteristics of each optical elements (1) can be varied by variation of the alignment and/or the length or density of the individual fibres of the optical fibre bundle (4).

ADVANTAGE - Low-cost device with good protection against sabotage.

FILE SEGMENT: EPI

MANUAL CODE: EPI: S03-C09; V07-N; W05-B01C

L26 ANSWER 10 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 1989-046226 [06] WPIX  
 DOC. NO. CPI: C1989-020414 [21]  
 DOC. NO. NON-CPI: N1989-035382 [21]  
 TITLE: Polymer processing monitor - includes IR source,  
 IR transmission fibre with a sensor  
 portion embedded in the polymer and an IR spectrum  
 analyser  
 DERWENT CLASS: A35; S03; V07  
 INVENTOR: STEVENSON W A  
 PATENT ASSIGNEE: (FOSV-C) FOSTER-MILLER INC  
 COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
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US 4798954 A 19890117 (198906) \* EN 5[5]  
 US 33789 E 19920107 (199205) EN

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 4798954 A		US 1987-10306	19870203
US 33789 E		US 1987-10306	19870203
US 33789 E		US 1990-515433	19900426

PRIORITY APPLN. INFO: US 1987-10306 19870203  
 US 1990-515433 19900426

## INT. PATENT CLASSIF.:

IPC RECLASSIF.: G01N0021-31 [N,C]; G01N0021-35 [N,A]; G01N0021-41  
 [N,C]; G01N0021-43 [N,A]; G01N0021-55 [I,A];  
 G01N0021-55 [I,C]

## BASIC ABSTRACT:

US 4798954 A UPAB: 20050427 IR spectroscopy system for monitoring the processing of a polymer material comprises an IR source; an IR spectrum analyser; an IR transmission fibre having a transmission portion and a sensor portion embedded in the polymer; and means for coupling the fibre to the source to transmit IR through the fibre to the sensor portion, the resulting IR spectra being analysed by the analyser to provide kinetic information on the processing of the polymer.  
 USE/ADVANTAGE - Especially used in monitoring the curing of resins, especially a resin-fibre matrix or resin-fibre laminate (claimed). Non-destructive method provides high quality process control information.

## FILE SEGMENT:

CPI; EPI

## MANUAL CODE:

CFI: A09-C; A09-D03; A11-B09C; A11-C02D; A12-S08  
 EPI: S03-A02; S03-E04; S03-E04A; S03-E14D7; V07-K;  
 V07-N

L26 ANSWER 11 OF 11

## ACCESSION NUMBER:

WPIX COPYRIGHT 2007 THE THOMSON CORP on STN  
 1985-243857 [40] WPIX

## TITLE:

Combined optical reception system for heat and  
 laser radiation - with extraction of laser  
 radiation after separation of radiation  
 cones by scanning mirror

## DERWENT CLASS:

P81; Q79; W06; W07

## INVENTOR:

GRACE L

## PATENT ASSIGNEE:

(SIEI-C) SIEMENS AG

## COUNTRY COUNT:

11

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 156181	A	19851002 (198540) *	DE	41	[19]	
DE 3506088	A	19860821 (198635)	DE			
US 4713544	A	19871215 (198806)	EN			
EP 156181	A	19890524 (198921)	DE			
DE 3570529	A	19890629 (198927)	DE			

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 156181 A		EP 1985-102260	19850228
DE 3506088 A		DE 1984-3408082	19840305

DE 3570529 G  
DE 3506088 A  
DE 3570529 G  
US 4713544 A

DE 1984-3408082 19840305  
DE 1985-3506088 19850221  
DE 1985-3506088 19850221  
US 1985-708250 19850305

PRIORITY APPLN. INFO: DE 1985-3506088 19850221  
DE 1984-3408082 19840305

## INT. PATENT CLASSIF.:

MAIN/SEC.: G01C005-00; G02B023-12; G02B026-10

IPC RECLASSIF.: F41G0003-00 [I,C]; F41G0003-06 [I,A]; G01S0017-00  
[I,C]; G01S0017-02 [I,A]; G01S0007-48 [I,C];  
G01S0007-481 [I,A]; G01S0007-481 [I,C];  
G01S0007-499 [I,A]

## BASIC ABSTRACT:

EP 156181 A UPAB: 20060104 The optical system has a scanning mirror (14), an IR optic (15) and respective detectors (16) for the heat radiation and the laser radiation. The laser radiation is deflected from the common reception channel at a point after the scanning mirror (14) at which full separation of the two convergent radiation cones is obtained.

Pref. a single detector support has a central detector (16) for the IR radiation surrounded by a detector array for the laser radiation to which the separated laser light is fed via a set of optical fibres.

USE - For combined heat imaging appts. and laser range finder.

FILE SEGMENT: GMPI; EPI

MANUAL CODE: EPI: W06-A06A; W07-A

=> fil hcap

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FILE COVERS 1980 TO DATE.

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FILE COVERS APRIL 1973 TO MAY 31, 2007

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FILE LAST UPDATED: 17 SEP 2007 <20070917/UP>  
FILE COVERS 1977 TO DATE.

>>> SIMULTANEOUS LEFT AND RIGHT TRUNCATION IS AVAILABLE  
IN THE BASIC INDEX (/BI) FIELD <<<

=> d 180 iall 1-24

L80 ANSWER 1 OF 24 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:1124590 HCAPLUS Full-text

DN 145:445885

ED Entered STN: 27 Oct 2006

TI Semiconductor diode for IR spectral range

IN Matveev, B. A.

PA Russia

SO Russ., 10pp.

CODEN: RUXXE7

DP Patent

LA Russian

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related  
Properties)

Section cross-reference(s): 76

WAM.CNT 1

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

PI RU 2286618 C2 20061027 RU 2002-119616

200207

16

PRAI RU 2002-119616 20020716

## CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

RU 2286618 IPCI H01L0033-00 [I,A]; H01L0031-12 [I,A]  
 IPCR H01L0033-00 [I,C]; H01L0033-00 [I,A]; H01L0025-00  
 [I,C\*]; H01L0025-00 [I,A]; H01L0031-12 [I,C];  
 H01L0031-12 [I,A]

AB Semiconductor devices are described which comprise diode sources and receivers, which radiate and receive radiation from surface in IR spectral range. The device can be used in gas anal. devices, spectrometers, and detection and communication systems. The semiconductor devices for IR spectral range, which diode has p- and n- areas with current-conducting contacts separated by p-n junction, active area, which is elec. connected with p-n junction, and at least one optical module. The module is optically connected with the active area by means of an optical compound. The module has a thickness which does not exceed a value of reverse value of average absorption factor of the module within the working range of quantum energies. The active area is made with a prohibited area thickness being compared with the energy of quantum of the working spectral range.

ST semiconductor diode IR detector source

IT Diodes

(IR semiconductor; semiconductor diode for IR spectral range)

IT Optical detectors

Semiconductor lasers

(IR; semiconductor diode for IR spectral range)

IT Arsenide glasses

Sulfide glasses

Telluride glasses

RL: DEV (Device component use); USES (Uses)

(antimony arsenic sulfide telluride; semiconductor diode for IR spectral range)

IT IR lasers

(near-IR; semiconductor diode for IR spectral range)

IT IR sources

Optical fibers

Optical reflectors

(semiconductor diode for IR spectral range)

IT IR lasers

(semiconductor; semiconductor diode for IR spectral range)

IT 7440-36-0, Antimony, uses 7440-38-2, Arsenic, uses 7704-34-9,  
 Sulfur, uses 13494-80-9, Tellurium, uses

RL: DEV (Device component use); USES (Uses)

(antimony arsenic sulfide telluride glass; semiconductor diode for IR spectral range)

IT 7440-66-6, Zinc, uses

RL: DEV (Device component use); MOA (Modifier or additive use); USES  
 (Uses)

(dopant; semiconductor diode for IR spectral range)

IT 60676-86-0, Vitreous silica

RL: DEV (Device component use); USES (Uses)

(quartz fiber; semiconductor diode for IR spectral range)

IT 1344-28-1, Alumina, uses

RL: DEV (Device component use); USES (Uses)

(sapphire-type; semiconductor diode for IR spectral range)

IT 1303-11-3, Indium arsenide (InAs), uses 7440-21-3, Silicon, uses  
 7440-37-5, Gold, uses 7440-74-6, Indium, uses 12645-36-2,

Gallium indium arsenide phosphide 22398-80-7, Indium phosphide

(InP), uses 106070-25-1, Gallium indium arsenide 177408-89-8, Antimony indium arsenide phosphide 184153-62-6, Antimony indium arsenide phosphide (Sb<sub>0.05</sub>-0.09InAs<sub>0.73</sub>-0.86P<sub>0.09</sub>-0.18) 229311-75-5, Antimony gallium indium arsenide (Sb<sub>0</sub>-0.07Ga<sub>0</sub>-0.07In<sub>0.93</sub>-1As<sub>0.93</sub>-1)

RL: DEV (Device component use); USES (Uses)

(semiconductor diode for IR spectral range)

IT 7440-31-5, Tin, uses 7440-54-2, Gadolinium, uses

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(semiconductor diode for IR spectral range)

L80 ANSWER 2 OF 24 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on STN

AN 2004-0183800 PASCAL Full-text

CP Copyright .COPYRGT. 2004 American Institute of Physics. All rights reserved.

TIEN Coherent hollow-core waveguide bundles for infrared imaging

AU GOPAL Veena; HARRINGTON James A.; GOREN Alon; GANNOT Israel

CS Rutgers University, Department of Ceramic and Materials Engineering, 607 Taylor Road, Piscataway, New Jersey 08854-8055; Tel Aviv University, Department of Biomedical Engineering, Faculty of Engineering, Tel Aviv 69978, Israel; Tel Aviv University, Department of Biomedical Engineering, Faculty of Engineering, Tel Aviv 69978, Israel; National Institutes of Health, Bethesda, Maryland 20892

SO Optical engineering, (2004-05), 43(5), 1195-1199

ISSN: 0091-3286 CODEN: OPEGAR

DT Journal

BL Analytic

CY United States

IA English

AV INIST-15166

AB Coherent IR fiber optic bundles for use in IR imaging from 2 to 12  $\mu$ m are fabricated from rigid hollow-glass waveguide arrays. The bore of each hollow glass tube in the bundle is coated with thin films of metallic Ag followed by AgI for enhanced reflectivity. The coating of the rigid bundle is done using liquid phase chemistry techniques applied to all tubes simultaneously. The hollow-glass arrays are composed of up to 900 individual tubes with bore sizes as small as 50  $\mu$ m. Several rigid hollow-core arrays are used to transmit an IR image of a small loop of hot wire and a sample of tissue heated by a CO<sub>2</sub> laser. .COPYRGT. 2004 Society of Photo-Optical Instrumentation Engineers.

CC 001D03G02C1; Applied sciences; Electronics; Electric circuits, Microwave circuits, Optical circuits, Optoelectronic circuits 001B40B70C; Physics; Optics; Materials science 001B40B79W; Physics; Optics 001B40B55L; Physics; Optics 001B80A15L; Physics; Materials science; Crystal growth 001B40B25K; Physics; Optics 001B00G60V; Physics; Metrology

PAC 4281B; 4270C; 4279W; 4255L; 8115L; 4225K; 0760V

CT Instrumentation; Experimental study; Optical fiber fabrication; Fiber optic sensors; Infrared imaging; Optical glass; Silver compounds; Optical arrays; Optical films; Gas lasers; Liquid phase deposited coatings; Light coherence

L80 ANSWER 2 OF 24 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:298247 HCAPLUS Full-text

DI 108:403928

ED Entered STN: 18 Apr 2003  
 TI Real-Time Monitoring of Distillations by Near-Infrared Spectroscopy  
 AU Pasquini, Celio; Scafi, Sergio H. F.  
 CS Instituto de Quimica, Universidade Estadual de Campinas, Sao Paulo, 13084-971, Brazil  
 SO Analytical Chemistry (2003), 75(10), 2270-2275  
 CODEN: ANCHAM; ISSN: 0003-2700  
 PB American Chemical Society  
 DT Journal  
 LA English  
 CC 51-23 (Fossil Fuels, Derivatives, and Related Products)  
 Section cross-reference(s): 47, 73  
 AB A simple device is described to couple a fast-scanning acoustooptic tunable filter-based NIR spectrophotometer to a distillation apparatus for monitoring the condensed vapor in real time. The device consists of a small funnel whose glass neck (2-mm diameter) is bent into an "U" format to produce a flow cell of approx. 150- $\mu$ L inner volume. A pair of optical fibers is used to deliver the monochromatic light and to collect the fraction passing through the glass tube. The end of the condenser of the distillation head touches the wall of the small funnel. The condensed liquid flows uncoupled from pressure changes in the interior of the distillation head. Absorbance spectra were obtained, during the distillation, as avgs. of 30 scans (4 s) every 5 s in the spectral range 950-1800 nm with nominal resolution of 2.0 nm. In the first expts., the distns. were performed at constant power supplied to the sample (25 mL) in a microdistn. apparatus working without any type of reflux column. The usefulness of the real-time monitoring of distillation is demonstrated using some prepared binary mixts. and by comparing the distillation behavior of adulterated and regular gasoline samples. Data anal. and interpretation are facilitated by employing principal component anal. The system accesses the composition of the condensate, which can sep. and concentrate one or more compds. present in the original sample.  
 ST monitoring distn near IR spectroscopy  
 IT IR spectroscopy  
 (near-IR; real-time monitoring of distns. by near-IR spectroscopy)  
 IT Distillation  
 (real-time monitoring of distns. by near-IR spectroscopy)  
 IT Gasoline  
 RL: AMX (Analytical matrix); ANST (Analytical study)  
 (real-time monitoring of distns. by near-IR spectroscopy)  
 RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 RE  
 (1) American Society For Testing And Materials; Standard Test Method for Distillation of Petroleum Products 1995, ASTM D-86  
 (2) Associacao Brasileira de Normas Tecnicas; Produtos de Petroleo-Determinacao das Propriedades de Destilacao 1998, NBR-9619  
 (3) Blanco, M; J Analyst 2000, V125, P1823 HCAPLUS  
 (4) Boyd, D; Proceedings of 9th International Conference on Near Infrared Spectroscopy P357  
 (5) Chung, H; Bull Korean Chem Soc 2001, V22, P37 HCAPLUS  
 (6) Faber, M; Anal Chem 1998, V70, P2972  
 (7) Heigl, J; Anal Chem 1947, V19, P293 HCAPLUS  
 (8) Hidayat, K; J Near Infrared Spectrosc 2000, V8, P53 HCAPLUS  
 (9) Kelly, J; Anal Chem 1989, V61, P313 HCAPLUS  
 (10) Otto, M; Chemometrics 1998  
 (11) Prufer, H; Analisis 1995, V23, PM14 HCAPLUS  
 (12) Raimundo, I; Lab Microcomput 1994, V13, P55 HCAPLUS  
 (13) Reboucas, M; J Near Infrared Spectrosc 2001, V9, P263 HCAPLUS  
 (14) Spakowski, A; Anal Chem 1950, V22, P1419  
 (15) Valleur, M; Pet Technol 1999, V4, P81  
 (16) Wong, J; Analyst 1982, V107, P1282 HCAPLUS

(17) Workman, J; Near Infrared Spectrosc 1996, V4, P69 HCAPLUS

- L80 ANSWER 4 OF 24 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on STN
- AN 2003-0451957 PASCAL Full-text
- CP Copyright .COPYRGT. 2003 INIST-CNRS. All rights reserved.
- TIEN The effect of GaSe on Ga-La-S glasses  
Non-oxide and new optical glasses 13: proceedings of the 13th International Symposium on Non-Oxide Glasses and New Optical Glasses, Pardubice, Czech Republic, 9-13 September 2002 (ISNOG 13)
- AU SHEPHARD J. D.; KANGLEY R. I.; HAND R. J.; FURNISS D.; O'DONNELL M.; MILLER C. A.; SEDDON A. B.  
FRUMAR Miloslav (ed.); WAGNER Tomas (ed.)
- CS Applied Optics & Photonics Group, Physics Department, Heriot Watt University, Edinburgh EH14 4AS, United Kingdom; Centre for Glass Research, Department of Engineering Materials, Sir Robert Hadfield Building, University of Sheffield, Mappin Street, Sheffield S1 3JD, United Kingdom; School of Mechanical, Materials, Manufacturing Engineering and Management, University of Nottingham, University Park, Nottingham NG7 2RD, United Kingdom  
Research Center of the University of Pardubice, Pardubice, Czech Republic; Department of General and Inorganic Chemistry, University of Pardubice, Pardubice, Czech Republic
- SO Journal of non-crystalline solids, (2003), 326-27(1), 439-445, 6 refs.  
Conference: 13 ISNOG 13: International Symposium on Non-Oxide Glasses and New Optical Glasses, Pardubice (Czech Republic), 9 Sep 2002  
ISSN: 0022-3093 CODEN: JNCSBJ
- DT Journal; Conference
- BL Analytic
- CY Netherlands
- LA English
- AV INIST-14572, 354000112941550810
- AB Gallium-lanthanum-sulphide (GLS) glasses have been investigated as candidate materials for fabrication of IR transmitting optical fibres. Previously, significant oxide additions have been used to increase glass stability and also to allow the tailoring of the RI the produce compatible core/clad pairs. However, oxide additions have a detrimental effect on the IR transparency and suitability for rare-earth doping. A method of extrusion has been proposed that can be used to produce core/clad optical fibre preforms. In this work a new method of altering the RI of the GLS glasses is investigated which can be used in conjunction with extrusion to produce optical fibre preforms. Variation of refractive index has been achieved using small additions of GaSe to the standard GLS composition, producing GLS<sub>Se</sub> glasses, avoiding the need for unfavourable oxide additions.
- CC 001B4CB70K; Physics; Optics; Materials science  
001B70H20C; Physics; Condensed matter physics, Materials science; Optical properties
- PAC 4270K; 7820C
- CT Infrared radiation; Experimental study; Transparency; Doping; Extrusion; Refractive index; Absorption spectra; Chalcogenide glasses; Gallium sulfides; Lanthanum sulfides; Ternary compounds
- L80 ANSWER 5 OF 24 ANABSTR COPYRIGHT 2007 RSC on STN
- AN 63(34):A10 ANABSTR Full-text
- TI Selective online sensor for liquid analysis.
- SO LaborPraxis (2001) 25(1), 22-23  
CODEN: LAPRDE ISSN: 0344-1733

DT Journal  
 LA German  
 AB In an evanescent-field sensor for determining total organic compounds in water the sample is passed through a tube containing an IR-transmitting fibre. The ends of which project through the tube wall. The fibre is coated with a polymer layer onto which the organic compounds but not the water are adsorbed. An IR beam is passed along the fibre and the organic compounds are determined by monitoring the amount of transmitted IR radiation which is related to the total organic compounds concentration in the sample. The online sensor should be useful in environmental and process analysis.

CC \*A General Analytical Chemistry (60000)  
 H Environment, Agriculture and Food  
 E Applied and Industrial Analysis

IT Analyte(s):  
 organic compounds  
 (detmn. of total, sensors for)  
 Matrix:  
 waters; natural; industrial products  
 (detmn. of total organic compounds in, sensors for)  
 Concepts:  
 sensors  
 (for organic compounds, IR polymer-coated fibre online)  
 process analysis  
 (online, sensors for, IR polymer-coated fibre, for detmn. of total organic compounds in water)  
 environmental monitoring  
 (of total organic compounds, sensors for, IR polymer-coated fibre online)

L80 ANSWER 6 OF 24 COMPENDEX COPYRIGHT 2007 EEI on STN  
 AN 2000(29):3516 COMPENDEX Full-text  
 TI Fiber optic thermal imaging system based on hollow glass waveguides or silver halide fibers as scanning elements.  
 AU Dekel, B. (Tel Aviv Univ, Tel-Aviv, Isr); Inberg, A.; Croitoru, N.; Shalem, S.; Katzir, A.  
 SO Optical Engineering v 39 n 4 2000.p 941-946  
 CODEN: OPEGAR ISSN: 0091-3286  
 PY 2000  
 DT Journal  
 TC Theoretical  
 LA English  
 AB A simple fiber optic thermal imaging system based on a thin and flexible IR waveguide is constructed. Two types of waveguides are used: silver halide fiber and hollow glass waveguide. The thermal image of a warm object is formed at the focal plane of an IR transmitting lens. The proximal end of the waveguide is fixed and attached to a pyroelectric IR detector. The distal end of the waveguide scans the thermal image in two directions. The IR radiation is transmitted through the waveguide to the detector. The signals from the detector are coupled into a suitable monitor, which produces a representation of the thermal image. In preliminary experiments, we attach a small magnet to the distal tip of the waveguide and move the tip using an electromagnetic field. For a target of spatial frequency 1.25 cycles/mm the modulation transfer function (MTF) of the system is 0.2 and for a target of spatial frequency of 0.1 cycles/mm the minimum resolvable temperature difference (MRTD) is 0.5 degree C. The system could be applied in industry or in medicine where imaging in the mid-IR and in a restricted space is required. (Author abstract) 18 Refs.

CC 741.3 Optical Devices and Systems; 741 Light, Optics and Optical Devices; 741.1.2 Fiber Optics; 714.3 Waveguides; 812.3 Glass; 804.2 Inorganic Compounds

CT \*Infrared imaging; Transfer functions; Optical waveguides; Optical glass; Optical fibers; Silver compounds  
; Scanning; Light modulation; Imaging systems; Fiber optics

ST Fiber optic thermal imaging systems; Hollow glass waveguides; Silver halide fibers

L80 ANSWER 7 OF 24 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on STN

AN 2001-0117881 PASCAL Full-text

CP Copyright .COPYRG. 2001 INIST-CNRS. All rights reserved.

TIEN TEIFU : A high-resolution integral field unit for the William Herschel Telescope  
Optical and IR telescope instrumentation and detectors : Munich, 27-31 March 2000

AU MURRAY Graham J.; ALLINGTON-SMITH Jeremy R.; CONTENT Robert; DODSWORTH George N.; DUNLOP Colin N.; HAYNES R.; SHARPLES Ray M.; WEBSTER John  
IYE Masanori (ed.); MOORWOOD Alan F.M. (ed.)

CS Astronomical Instrumentation Group, University of Durham, United Kingdom; Anglo-Australian Observatory, Australia

SO SPIE proceedings series, (2000), 4008(p.1), 611-622, 9 refs.  
Conference: Optical and IR telescope instrumentation and detectors. Conference, Munich (Germany, Federal Republic of), 27 Mar 2000  
ISSN: 1017-2653  
ISBN: 0-8194-3633-X

DT Journal; Conference

BL Analytic

CY United States

LA English

AV INIST-21760, 354000092025410630

AB In order to enhance the spectroscopic capabilities of the William Herschel Telescope (WHT) we have recently completed an integral field unit comprising 1000 elements ('Thousand-Element Integral Field Unit', or TEIFU). Integral field units maximize the efficiency of a spectrograph by re-formatting a two-dimensional field in order to match the entrance slit of the camera. Such techniques enable high-resolution spectral data to be obtained over the whole field simultaneously, and are particularly suited for use with adaptive optics systems. TEIFU is an optical fibre system employing microlens arrays for input and output coupling. The field is divided into two halves, permitting object and background to be derived during the same exposure. In addition, the fields can be optically re-positioned to form a larger, single field for greater object coverage. Thus the observer can choose between different observing modes to emphasize background subtraction or contiguous field. The fore-optics can be changed to alter the image scale and to interface to the NAOMI adaptive optics system which is currently under construction. TEIFU in its present configuration as tested on the WHT, gives a spatial sampling of 0.25 arcsec with a total field of 7.8 x 7.0 arcsec, but a 0.125 arcsec sampling option may be provided. We are also considering an option to upgrade TEIFU for near IR operation. This paper will outline system design, operation and preliminary results.

CC 001E03A55A; Universe sciences; Astronomy; Astrophysics

CT Spectral resolution; Instruments; Efficiency; Adaptive optics; Adaptive systems; Optical fibers; Arrays;  
Input-output; Coupling; Construction; Configuration; Microlens;  
Operation; Design; Astronomical instruments; High-resolution  
methods; Astronomical telescopes; Infrared imaging; Performance

L80 ANSWER 8 OF 24 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on STN

AN 2000-0446701 PASCAL Full-text

CP Copyright .COPYRG. 2000 INIST-CNRS. All rights reserved.

TIEN A review of IR transmitting, hollow waveguides  
Infrared waveguides

AU HARRINGTON J. A.  
SCHAAFSMA David (introd.)

CS Ceramic & Materials Engineering, Rutgers University, Piscataway,  
New Jersey, United States  
Tetra Tech Data Systems, Carlsbad, CA, United States

SO Fiber and integrated optics, (2000), 19(3), 211-227, 36 refs.  
ISSN: 0146-8030 CODEN: FOIOD2

DT Journal

BL Analytic

CY United Kingdom

LA English

AV INIST-18056, 354000091247290020

AB Infrared (IR) transmitting hollow waveguides are an attractive alternative to solid-core IR fibers. Hollow guides are made from plastic, metal, or glass tubes that have highly reflective coatings deposited on the inside surface. These guides have losses as low as 0.1 dB / m at 10.6  $\mu$ m and may be bent to radii less than 5 cm. For use in high-power laser delivery applications, the guides have been shown to be capable of transmitting up to 3 kW of CO.sub.2 laser power. They are also finding uses in both temperature and chemical fiber sensor applications. This paper reviews the progress in hollow waveguide technology with emphasis on the best guides available today.

CC 001D03G02C1; Applied sciences; Electronics; Electric circuits,  
Microwave circuits, Optical circuits, Optoelectronic circuits

PAC 4282B

CT YAG laser; Wavelength; Power laser; Review; Fiber optic  
sensors; Hollow waveguide; Infrared spectrum; Plastic  
material; Glass; Metal; Reflective coatings; Coating process; High  
power; CO.sub.2 laser; Chemical sensor;  
Measurement sensor; Metal tube

L8C ANSWER 9 OF 24 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS  
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AN 1999-0346741 PASCAL Full-text

CP Copyright .COPYRG. 1999 INIST-CNRS. All rights reserved.

TIEN The use of polymer coated AgClBr fibers for  
fiber optic evanescent wave spectroscopy (FEWS) of  
biological fluids  
Biomedical sensors, fibers, and optical  
delivery systems : Stockholm, 8-10 September 1998

AU BORMASHENKO E.; FOGREB R.; SUTOVSKI S.; VASERMAN I.; KATZIR A.  
BALDINI Francesco (ed.); CROITORU Nathan I. (ed.); FRENZ Martin  
(ed.); LUNDSTROM Ingemar (ed.); MIYAGI Mitsunobu (ed.); PRATESI  
Riccardo (ed.); WOLFBEIS Otto S. (ed.)

CS The College of Judea and Samaria, The Research Institute, Ariel,  
44837, Israel; Raymond and Beverly Sackler Faculty of Exact  
Sciences, School of Physics and Astronomy, Tel-Aviv University,  
Tel-Aviv, 69978, Israel  
International Society for Optical Engineering, Bellingham WA,  
United States (patr.)

SO SPIE proceedings series, (1999), 3570, 100-106, 8 refs.  
Conference: Biomedical sensors, fibers, and optical delivery  
systems, Stockholm (Sweden), 8 Sep 1998  
ISSN: 1017-2653  
ISBN: 0-8194-3032-3

DT Journal; Conference

BL Analytic

CY United States

LA English  
 AV INIST-21760, 354000084601810120  
 AB Silver halide IR-transmitting fibers were coated with polymer films in order to protect them from deterioration caused by interaction with biological fluids. Such coated fibers can be used for human blood serum analysis carried out by Fiberoptic Evanescent Wave Spectroscopy (FEWS) using a Fourier Transform infrared (FTIR) spectrometer. A dip-coating procedure was worked out for coating fibers with polystyrene or silicone-elastomer thin films. Deterioration tests of coated fibers in saline solution that imitates human blood serum salts were performed. These demonstrated that the polymer layers provide protection to the fibers, while making it possible to carry out FEWS measurements.

CC 002B26N; Life sciences; Medical sciences; Biomedical engineering  
 CT Coated material; Optical fiber; Evanescent wave; Optical spectrometry; Halides; Silver; Infrared radiation; Biological fluid; Blood; Serum; Chemical reaction; Sensitivity analysis; Immersion test

L80 ANSWER 10 OF 24 COMPENDEX COPYRIGHT 2007 EEL on STN  
 AN 2000(12):5359 COMPENDEX Full-text  
 TI Mid-IR fiber bundle for remote monitoring and control of chemical processing in a CVD chamber.  
 AU Lu, Ping (Univ New Brunswick, Fredericton, NB, Can); Bao, Xiaoyi; Whidden, Tom  
 MT Proceedings of the 1999 Infrared Optical Fibers and their Applications.  
 ML Boston, MA, USA  
 MD 21 Sep 1999-22 Sep 1999  
 SO Proceedings of SPIE - The International Society for Optical Engineering v 3849 1999.p 67-73.  
 CODEN: PSISDG ISSN: 0277-786X  
 PY 1999  
 MN 56292  
 DT Journal  
 TC General Review  
 LA English  
 AB With the requirements of the remote control outside CVD clean room environment it is recommended to have a FTIR spectrometer separated from the clean room. However to transmit mid-IR light from FTIR to CVD chamber in free space is out of question due to the high loss (absorption of water and CO2 etc.). Naturally, the mid-IR fiber with the full spectrum transmission range (5000 to 500 cm minus 1) will provide the solution. Unfortunately none of the mid-IR fiber can cover such a broad range with low loss, unless a few different kinds of fibers are used together. A mid-IR fiber bundle consisting of two silver halide and six zirconium fluoride fibers was designed and fabricated. The transmission of this bundle shows the broad spectrum coverage of 5000 to 500 cm minus 1, which is required for mid-IR FTIR spectrometer in monitoring the gas concentrations in a CVD chamber. The possibility of using this fiber bundle for remote monitoring and control of chemical process in a CVD chamber will be discussed and some experimental results will be presented. (Author abstract) 8 Refs.

CC 741.1.2 Fiber Optics; 741.1 Light. Optics; 301 Chemistry; 702.2 Chemical Reactions; 804.2 Inorganic Components  
 CT Optical fibers; Infrared radiation; Fourier transform infrared spectroscopy; Silver compounds; Zirconium compounds; Chemical vapor deposition  
 ST Mid-infrared Fourier transform infrared spectroscopy  
 BT C\*O; CO2; C cp; cp; O cp

L80 ANSWER 11 OF 24 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on STN  
 AN 2000-0407257 PASCAL Full-text

- CP Copyright .COPYRGT. 2000 INIST-CNRS. All rights reserved.
- TIEN An mid-IR fiber bundle for remote monitoring and control of chemical processing in a CVD chamber  
Infrared optical fibers and their applications  
: Boston MA, 21-22 September 1999
- AU PING LU; XIAOYI BAO; WHIDDEN T.  
SAAD Mohammed (ed.); HARRINGTON James A. (ed.)
- CS Physics Department, University of New Brunswick, Fredericton, New Brunswick, E3B 5A3, Canada; Xylaur Enterprises, Incutech Centre, UNB Campus, Fredericton, New Brunswick E3B 6C2, Canada  
International Society for Optical Engineering, Bellingham WA, United States (patr.)
- SO SPIE proceedings series, (1999), 3849, 67-73, 8 refs.  
Conference: Infrared optical fibers and their applications.  
Conference, Boston MA (United States), 21 Sep 1999  
ISSN: 1017-2653  
ISBN: 0-8194-3442-6
- DT Journal; Conference
- BL Analytic
- CY United States
- LA English
- AV INIST-21760, 354000090069000080
- AB With the requirements of the remote control outside CVD clean room environment it is recommended to have a FTIR spectrometer separated from the clean room. However to transmit mid-IR light from FTIR to CVD chamber in free space is out of question due to the high loss (absorption of water and CO.sub.2 etc.). Naturally, the mid-IR fiber with the full spectrum transmission range (5000 to 500 cm.sup.-.sup.1) will provide the solution. Unfortunately none of the mid-IR fiber can cover such a broad range with low loss, unless a few different kinds of fibers are used together. A mid-IR fiber bundle consisting of two silver halide and six zirconium fluoride fibers was designed and fabricated. The transmission of this bundle shows the broad spectrum coverage of 5000 to 500 cm.sup.-.sup.1, which is required for mid-IR FTIR spectrometer in monitoring the gas concentrations in a CVD chamber. The possibility of using this fiber bundle for remote monitoring and control of chemical process in a CVD chamber will be discussed and some experimental results will be presented.
- CC 001D03G02C4; Applied sciences; Electronics; Electric circuits, Microwave circuits, Optical circuits, Optoelectronic circuits
- CT Optical fiber; Mid infrared radiation;  
Measurement method; Remote supervision; Process control; On line;  
Chemical vapor deposition; Chemical processing;  
Remote control; Clean room; Infrared spectrometry; Fourier transform spectroscopy; Water absorption; Absorption spectrum; Monitoring system; Processing control; Microelectronic fabrication; Fiber bundle; Silver halides; Zirconium fluoride; Experimental study; Experimental result; Waveform
- L80 ANSWER 12 OF 24 ANABSTR COPYRIGHT 2007 RSC on STN
- AN 60(8):A53 ANABSTR Full-text
- ET A new remote-sensing IR device.
- AU Ciurezak, E. W.
- SO Spectroscopy (Eugene, Oreg.) (1998) 13(1), 24, 26, 28  
CODEN: SPECET ISSN: 0887-6703
- DT Journal
- LA English
- AB The hand-holdable non-contact IR reflectance device described (Sensiv, Walcham, MA, USA) consists essentially of a parabolic mirror divided along its axis by a vertical plane. One of the half-mirrors focuses the radiation from an IR source at the surface to be examined (working distance 16 in.), and the other collects the reflected radiation and focuses it on an optical fibre for transmission to a

conventional or portable FTIR spectrometer. Its use is demonstrated in (i) the validation of cleaning procedures in pharmaceutical manufacture, (ii) the interference-fringe thickness measurement of organic coatings on metals, and (iii) monitoring of the curing of epoxy-coatings.

CC \*A General Analytical Chemistry (60000)

C Spectroscopy and Radiochemical Methods

E Applied and Industrial Analysis

IT Matrix:

films

(analysis of, sensors for, IR reflectance)

Concepts:

sensors

(IR reflectance, for film and surface analysis)

spectrometry, absorption, infra-red, Fourier-transform

(reflectance sensors based on, for film and surface analysis)

surface analysis

(sensors for, IR reflectance)

L80 ANSWER 13 OF 24 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on STN

AN 1998-0015118 PASCAL Full-text

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TIEN Blood diagnostics using fiberoptic evanescent wave

spectroscopy and neural networks analysis

AU GOTSHAL Y.; SIMHI R.; SELA B.-A.; KATZIR A.

CS Raymond and Beverly Sackler Faculty of Exact Sciences, School of Physics and Astronomy, Tel-Aviv University, Tel-Aviv 69987, Israel; The Institute of Chemical Pathology, Sheba Medical Center, Tel-Hashomer, Israel

SO Sensors and actuators. B. Chemical, (1997). 42(3). 157-161, 14 refs.

ISSN: 0925-4005

DT Journal

BL Analytic

CY Switzerland

LA English

AV INIST-19425B, 354000079438720020

AB A spectral analysis of human blood serum was undertaken by fiberoptic evanescent wave spectroscopy (FEWS) using a Fourier transform infrared (FTIR) spectrometer. The blood serum samples were introduced into a special cell designed for FEWS of liquids, with an IR transmitting silver halide fiber as the sensing element. The spectra were analyzed by models of neural networks (NN), and the concentrations of protein, cholesterol and uric acid in human blood serum were obtained. Our results are in agreement with those obtained by ordinary chemical enzymatic methods and multivariate calibration methods. The estimated prediction errors obtained (in percent of the average value) were 4.7% for total protein, 22% for cholesterol and 35% for uric acid. This method can be used for in-situ real-time blood analysis.

CC 002A02G02; Life sciences; Biological sciences; Biochemistry

CT Chemical sensor; Optical sensor;

Evanescent wave; Optical fiber; Neural network;

Infrared spectrometry; Fourier transformation; Measurement in situ;

Biological fluid; Blood; Quantitative analysis; Diagnosis

L80 ANSWER 14 OF 24 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on STN

AN 1996-0319276 PASCAL Full-text

CP Copyright .COPYRGT. 1996 INIST-CNRS. All rights reserved.

TIEN Fabrication of long lengths of low-loss IR

transmitting As.sub.4.sub.0S.sub.(.sub.6.sub.0.sub.-

.sub.x)Se.sub.x glass fibers

AU SANGHERA J. S.; NGUYEN V. Q.; PUREZA P. C.; MIKLOS R. E.; KUNG F. H.; AGGARWAL I. D.

CS Naval Research Laboratory, Code 5603.2, Washington, DC 20375, United States

SO Journal of lightwave technology, (1996), 14(5), 743-748, 21 refs. ISSN: 0733-8724 CODEN: JLTEDG

DT Journal

BL Analytic

CY United States

LA English

AV INIST-20142, 354000043584620140

AB Teflon clad and As.sub.4.sub.0S.sub.6.sub.0 glass clad  
As.sub.4.sub.0S.sub.5.sub.5Se.sub.5 fibers transmitting in the 1-6  $\mu$ m wavelength region have been fabricated in lengths of about 50 m and with minimum losses of 0.098 and 0.65 dB/m, respectively. Short lengths of the Teflon clad fiber possessed a minimum loss of 0.047 dB/m. While current fiber losses are dominated by extrinsic scattering and absorption, the calculated theoretical minimum loss is estimated to be 3.6 dB/km at 5.3  $\mu$ m and is limited by the contribution from the weak absorption tail. Improvements in the purification and processing of the glasses into the optical fibers are required to reduce the losses further.

CC 001D03G02C1; Applied sciences; Electronics; Electric circuits, Microwave circuits, Optical circuits, Optoelectronic circuits

CT Experimental study; Production process; Optical characteristic; Optical fiber; Arsenic Selenides; Arsenic Sulfides; Ternary compound; Glass fiber; Chalcogenides

L8C ANSWER 15 OF 24 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1995:374804 HCAPLUS Full-text

DN 123:274725

ED Entered STN: 25 Oct 1995

TI Deuterium concentration analyzer for the hydrogen sulfide-water isotope exchange.

IN Pavelescu, Marian; Vaduva, Eugen

PA Uzina "G", Ramnicu Valcea, Rom.

SO Rom., 5 pp.  
CODEN: RUXXA3

DT Patent

LA Romanian

IC ICM G01J003-42  
ICS G01N021-35

CC 79-2 (Inorganic Analytical Chemistry)  
Section cross-reference(s): 68, 72

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RO 104811	B1	19940610	RO 1989-141392	19890828
PRAI RO 1989-141392		19890828		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
RO 104811	ICM	G01J003-42
	ICS	G01N021-35
	IPCI	G01J0003-42 [ICM,4]; G01N0021-35 [ICS,4]; G01N0021-31 [ICS,4,C*]
	IPCR	G01J0003-42 [I,C*]; G01J0003-42 [I,A];

G01N0021-31 [I,C\*]; G01N0021-35 [I,A]

AB The analyzer uses IR spectrophotometry and allows for continuous deuterium determination directly in the **sepn** . column, without sample removal. The analyzer consists on an elongated chamber with 2 totally-reflecting sapphire prisms on one end. These are connected, by way of **optical fibers**, with an optical coupling system, on the far end, connected to the IR source and a **detector device**. The analyzer is connected online with the computer which controls the process.

ST hydrogen sulfide water isotope exchange; deuterium exchange hydrogen sulfide water

IT Exchange reaction  
(deuterium isotope exchange determination in hydrogen sulfide-water by IR spectrophotometry using fiber optic system)

IT 7732-18-5, Water, analysis 7783-06-4, Hydrogen sulfide, analysis  
RL: AMX (Analytical matrix); ANST (Analytical study)  
(deuterium isotope exchange determination in hydrogen sulfide-water by IR spectrophotometry using fiber optic system)

IT 7782-39-0, Deuterium, analysis  
RL: ANT (Analyte); ANST (Analytical study)  
(deuterium isotope exchange determination in hydrogen sulfide-water by IR spectrophotometry using fiber optic system)

L80 ANSWER 16 OF 24 JAPIO (C) 2007 JPO on STN

AN 1993-124834 JAPIO Full-text

TI FLUORIDE GLASS

IN NISHII JUNJI

PA NIPPON SHEET GLASS CO LTD

PI JP 05124834 A 19930521 Heisei

AI JP 1991-290251 (JP03290251 Heisei) 19911106

PRAI JP 1991-290251 19911106

SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1993

IC ICM C03C003-32

AB PURPOSE: To obtain fluoride glass having excellent chemical durability and IR transmittance and fit for a fiber for optical communication by incorporating ZrF<SB>4</SB>, AlF<SB>3</SB>, YF<SB>3</SB>, LaF<SB>3</SB>, BaF<SB>2</SB>, SrF<SB>2</SB> and NaF in a specified molar ratio. CONSTITUTION: This fluoride glass contains, by mol, >=85%, in total, of 33-50% ZrF<SB>4</SB>, 7-19% AlF<SB>3</SB>, 3.5-11% YF<SB>3</SB>, 0-6.5% LaF<SB>3</SB>, 13-23% BaF<SB>2</SB>, 0-13% SrF<SB>2</SB> and 8-20% NaF. Since the AlF<SB>3</SB> content has been increased without narrowing the IR transmission region, the water resistance of this glass can be improved. For example, glass having a compsn. consisting of, by mol, 37.4% ZrF<SB>4</SB>, 13.8% AlF<SB>3</SB>, 6.9% YF<SB>3</SB>, 2.3% LaF<SB>3</SB>, 18.4% BaF<SB>2</SB>, 6.2% SrF<SB>2</SB> and 15% NaF is colorless and transparent and has 308&deg;C glass transition temperature, 442&deg;C crystallization start point and 520&deg;C m.p. of crystals. COPYRIGHT: (C)1993,JPO&Japio

L80 ANSWER 17 OF 24 JAPIO (C) 2007 JPO on STN

AN 1990-074905 JAPIO Full-text

TI PRODUCTION OF OPTICAL FIBER FOR INFRARED LIGHT

IN IKEDO TOSHI; WATARI MASABUMI; SUGIURA HISANORI; NAKANOU HIROMI

PA MATSUSHITA ELECTRIC IND CO LTD

PI JP 02074905 A 19900314 Heisei

AI JP 1988-228230 (JP53228230 Showa) 19880912

PRAI JP 1988-228230 19880912

SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1990

IC ICM G02B006-00

ICS G02B006-00

ICA C30B029-10

AB PURPOSE: To improve the power transmittability of the fiber by sealing gaseous halogen and allowing a single crystal to grow at the time of producing the single crystal of the base crystal for the polycrystalline fiber of thallium halide. CONSTITUTION: For example, the single crystal is used for the base crystal for the fiber and the single crystal having  $\geq 3 \times 10^3 \Omega \cdot \text{cm}$  electric resistivity is used. Production of a KRS-5 (TlBr-TlI crystal) is executed by compounding  $\geq 99.9\%$  TlBr and 42wt.% and 58wt.% TlI, evacuating the chamber to  $\geq 10^{-6}$  Torr, putting the specified volume of gaseous  $\text{I}_2$  therein after about 5 hours and sealing the chamber. The temperature is raised to about  $500^\circ\text{C}$  and a screw 6 is slowly lowered after about 6 hours. The crystal is allowed to grow in about one week. Namely, the single crystal is produced in the  $\text{I}_2$  atmosphere to form the crystal having the high electric resistivity. The IR fiber which can transmit high power is produced in this way. COPYRIGHT: (C)1990, JPO&Japio

L80 ANSWER 18 OF 24 COMPENDEX COPYRIGHT 2007 EEI on STN

AN 1991(2):20005 COMPENDEX DN 910214944 Full-text

TI Applications of IR transmitting optical fiber in the chemical industry.

AU Driver, Richard D. (Iris Fiber Optics, Inc, Acton, MA, USA); Leskowitz, Garrett M.; Curtiss, Lawrence E.

MT Infrared Fiber Optics II.

MO SPIE

ML Los Angeles, CA, USA

MD 18 Jan 1990-19 Jan 1990

SO Proceedings of SPIE - The International Society for Optical Engineering v 1228. Publ by Int Soc for Optical Engineering, Bellingham, WA, USA. p 233-245  
CODEN: PSISDG ISSN: 0277-786X  
ISBN: 0-8194-0269-9

PY 1990

MN 13850

DT Conference Article

TC Theoretical; Application; Experimental

LA English

AB Infrared transmitting heavy metal fluoride optical fiber has been used to separate an FTIR analyzer from a remote measurement point. Several types of remote sensors have been developed for species concentration measurements. Remote transmission cells connected to fiber cables have been used for the measurement of spectra in liquids and gases. Evanescent wave probes have been developed to obtain spectra in highly absorbing and highly scattering media. Remote spectra taken with an FTIR fiber-optic analyzer in the  $8000 - 2000 \text{ cm}^{-1}$  spectral region are presented. A calculation of detectability limits for these species based on the measured data will be presented. A discussion of sensor multiplexing applied to remote fiber optic FTIR spectroscopy will be given. (Author abstract) 10 Refs.

CC 741 Optics & Optical Devices; 802 Chemical Apparatus & Plants; 732 Control Devices

CT \*FIBER OPTICS: Applications; INFRARED RADIATION; SPECTROSCOPY, INFRARED; REMOTE SENSING; MINERALOGY: Fluorides; CHEMICAL INDUSTRY

ST FLUORIDE OPTICAL FIBERS; IR TRANSMITTING FIBERS

L80 ANSWER 19 OF 24 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1990:451596 HCAPLUS Full-text

DN 112:51596

ED Entered STN: 03 Aug 1990

TI Fiber-optic chemical sensing with

infrared-transmitting optical fiber

AU Driver, Richard D.; Leskowitz, Garrett M.; Curtiss, Lawrence E.

CS IRIS Fiber Opt., Inc., Acton, MA, 01720, USA

SO Proceedings of SPIE-The International Society for Optical Engineering (1990), 1172 (Chem. Biochem. Environ. Fiber Sens.), 60-8  
CODEN: PSISDG; ISSN: 0277-786X

DT Journal

LA English

CC 79-2 (Inorganic Analytical Chemistry)

AB A IR transmitting heavy metal fluoride optical fiber was used to sep. a Fourier-transform IR (FTIR) spectrometer from a remote measurement point. Several types of remote sensors were developed for concentration measurements. Remote transmission cells connected to fiber cables were used to measure near-IR spectra of liqs. and gases. An evanescent-wave probe for obtaining spectra of highly scattering samples was developed. Fiber-optic FTIR may be used to solve many problems in process monitoring and control. Remote transmission cells connected to fiber cables were used to measure near-IR spectra of liqs. and gases.

ST IR fiber optic chem sensor

IT Process control and dynamics

(IR transmitting optical  
fibers in remote chemical sensing in)

IT Gas analysis

(by IR Fourier-transform spectrometry using fiber-optic  
chemical sensor)

IT Optical fibers

(chemical sensors, heavy-metal fluoride)

IT Spectrochemical analysis

(IR, fiber-optic remote sensors in)

IT Lubricating oils

(crankcase, IR Fourier-transform of, using fiber optic  
chemical sensor)

IT 7732-18-5, Water, analysis

RL: ANT (Analyte); ANST (Analytical study)  
(detection of, in isopropanol using fiber-optic  
chemical sensor and heavy-metal fluoride fiber)

IT 74-82-8, Methane, analysis

RL: ANT (Analyte); ANST (Analytical study)  
(detection of, using optical fiber in IR  
spectrometry)

IT 67-63-0, Isopropanol, analysis

RL: AMX (Analytical matrix); ANST (Analytical study)  
(water determination in, using fiber-optic chemical  
sensor and heavy-metal transmitting optical  
fiber)

LSO ANSWER 20 OF 24 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1990:451593 HCAPLUS Full-text

DN 113:51593

ED Entered STN: 03 Aug 1990

TI Remote FTIR spectroscopy with heavy metal fluoride optical  
fibers

AU Driver, R. D.; Leskowitz, G. M.; Curtiss, L. E.

CS IRIS Fiber Opt., Acton, MA, 01720, USA

SO Advances in Instrumentation and Control (1989), 44 (Pt. 4), 1305-15  
CODEN: AINCEV; ISSN: 1054-0032

DT Journal

LA English

CC 79-2 (Inorganic Analytical Chemistry)

Section cross-reference(s): 73

AB IR transmitting zirconium fluoride

optical fiber cables were used to sep. an FTIR spectrometer 50 m from the sensor location. Several types of remote sensors were used. Remote flow-through absorption cells were used for the measurement of spectra of liqs. and gases. Evanescent wave probes were used to obtain spectra in highly scattering or highly absorbing media. Typical spectra in the 1 to 4.5  $\mu\text{m}$  spectral region are presented. The detection sensitivity of the fiber optic FTIR spectrometer is discussed.

ST remote IR spectrochem analysis **optical fiber**

IT Gasoline

RL: ANT (Analyte); ANST (Analytical study)

(detection of, by remote IR spectrometry using **optical fibers**)

IT Wave

(evanescent, detection of remote, using heavy metal fluoride **optical fibers**)

IT **Optical fibers**

(remote Fourier-transform IR spectroscopy with **chemical sensors** using heavy-metal fluoride)

IT Gas analysis

(remote, by Fourier transform IR spectrometry using heavy metal fluoride **optical fibers**)

IT Spectrometers

(IR, remote cell for, for anal. using heavy metal fluoride **optical fibers**)

IT Spectrochemical analysis

(IR, remote, using heavy metal fluoride **optical fibers**)

IT 9003-53-6, Polystyrene

RL: ANST (Analytical study)

(IR reflection spectra of film of)

IT 74-82-8, Methane, analysis 111-65-9, Octane, analysis

RL: ANT (Analyte); ANST (Analytical study)

(detection of, by remote IR spectrometry using **optical fibers**)

IT 1310-73-2, Sodium hydroxide, properties

RL: PRP (Properties)

(differential evanescent spectra of aqueous)

L80 ANSWER 21 OF 24 ANABSTR COPYRIGHT 2007 RSC on STN

AN 53(7):C38 ANABSTR Full-text

TI Fibre-optic **chemical sensing** with  
infra-red-transmitting optical fibre.

AU Driver, R. D.; Leskowitz, G. M.; Curtiss, L. E. (IRIS Fiber Optics Inc., Acton, MA 01720, USA)

SO Proc. SPIE-Int. Soc. Opt. Eng. (1989) 1172, 50-58

CODEN: PSISDG ISSN: 0277-786X

ET Journal

LA English

AB An 11-m-long heavy metal fluoride optical fibre was used to separate an FTIR spectrometer from a remote measurement point. Spectra were obtained using transmission and internal reflection sampling techniques. Remote transmission cells were used to measure the near-IR spectra of various liquid and gases. An evanescent-wave probe is described for obtaining the spectra of highly scattering liquids and pastes. The use of such systems in process monitoring and control is discussed.

CC \*C Spectroscopy and Radiochemical Methods (30000)

\*E Applied and Industrial Analysis

IT Concepts:

sensors

(optical-fibre, heavy metal fluoride, IR-

transmitting, for remote FTIR measurements)  
 spectrometry, infra-red  
 (FT, optical-fibre sensor for remote)  
 quality control  
 (process, optical-fibre sensor for remote FTIR  
 spectrometric)

- L80 ANSWER 22 OF 24 COMPENDEX COPYRIGHT 2007 EEJ on STN  
 AN 1991(5):57317 COMPENDEX DN 910556909 Full-text  
 TI Remote FTIR spectroscopy with heavy metal fluoride optical  
 fibers.  
 AU Driver, R.D. (Iris Fiber Optics, Acton, MA, USA); Leskowitz, G.M.;  
 Curtiss, L.E.  
 MT Proceedings of the ISA/89 International Conference Exhibit Part 4  
 (of 4).  
 ML Philadelphia, PA, USA  
 MD 22 Oct 1990-27 Oct 1990  
 SO Advances in Instrumentation, Proceedings v 44 pt 4. Publ by ISA  
 Services Inc, Research Triangle Pk, NC, USA.p 1305-1315  
 CODEN: AVINBP ISSN: 0065-2814  
 PY 1989  
 MN 13785  
 DT Conference Article  
 TC Application  
 LA English  
 AB IR transmitting zirconium fluoride  
 optical fiber cables have been used to separate a FTIR spectrometer 50 meters from  
 the sensor location. Several types of remote sensors have been utilized. Remote  
 flow-through absorption cells have been used for the measurement of spectra of  
 liquids and gases. Evanescent wave probes have been used to obtain spectra in  
 highly scattering or highly absorbing media. Typical spectra in the 1 to 4.5  $\mu\text{m}$   
 spectral region will be presented. The detection sensitivity of the fiber optic  
 FTIR spectrometer will be discussed. (Author abstract)  
 CC 741 Optics & Optical Devices; 804 Chemical Products; 801 Chemical  
 Analysis & Physical Chemistry  
 CT OPTICAL FIBERS; FIBER OPTICS;  
 ZIRCONIUM COMPOUNDS; SPECTROSCOPY, INFRARED  
 ST FTIR SPECTROSCOPY; FLOW THROUGH ABSORPTION CELLS; EVANESCENT WAVE  
 PROBES; ZIRCONIUM FLUORIDE OPTICAL FIBER CABLES
- L80 ANSWER 23 OF 24 JAPIO (C) 2007 JPO on STN  
 AN 1983-092838 JAPIO Full-text  
 TI MEASURING DEVICE FOR LIGHT LOSS  
 IN SATO CHIAKI  
 PA OLYMPUS OPTICAL CO LTD  
 PI JP 58092838 A 19830602 Showa  
 AI JP 1981-190119 (JP56190119 Showa) 19811127  
 PFAI JP 1981-190119 19811127  
 SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol.  
 1983  
 IC ICM G01M011-02  
 ICS G01N021-59  
 AB PURPOSE: To detect the emission output of an optical fiber for transmission of IR  
 rays and to measure light losses with high accuracy in said optical fiber by using  
 an IR detector having plural pyroelectric type IR sensors.  
 CONSTITUTION: After the IR light from a light source 11 is intermitted by a light  
 chopper 21, said light is made incident to the incident end of an optical fiber 14  
 wound on a drum of a specified diameter and is further put into an IR detector 15  
 from the exit end thereof. The many pyroelectric IR sensors 16 provided on the  
 inside surface of the housing 151 of the detector 15 detect IR light as a change

in temperature The light divided by a half mirror 13 is monitored of the fluctuations in the output thereof by a power monitor 20, and is connected together with the outputs of the sensors 16 to a recorder 19. Now, the fiber 14 is cut by each specified length and the output from a lock-in amplifier 18 is read at each cutting. Since there are many sensors in the hermetically closed housing, all of the IR light are detected with good efficiency and the light losses of the optical fibers are determined accurately. COPYRIGHT: (C)1983,JPO&Japio

L80 ANSWER 24 OF 24 JAPIO (C) 2007 JPO on STN

AN 1982-145051 JAPIO Full-text

TI INFRARED RAY TRANSMITTING GLASS

IN OSAWA KAZUYA; SHIBATA TOSHIAKI; TAKAHASHI KENICHI

PA AGENCY OF IND SCIENCE & TECHNOL

PI JP 57145051 A 19820907 Showa

AI JP 1981-30522 (JP56030522 Showa) 19810305

PRAI JP 1981-30522 19810305

SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1982

IC ICM C03C003-18

ICS C03C003-30

ICA G02B005-14

AB PURPOSE: To manufacture an IR-transmitting glass having improved thermal stability and transmitting characteristics, by using a quadri-component material obtained by compounding  $\text{ZrF}_{4\text{SB}}$ ,  $\text{BaF}_{2\text{SB}}$ , NaF and  $\text{YF}_{3\text{SB}}$  at specific ratios. CONSTITUTION: An IR-transmitting glass containing  $53\sim 61\text{mol}\%$   $\text{ZrF}_{4\text{SB}}$ ,  $18\sim 27\text{mol}\%$   $\text{BaF}_{2\text{SB}}$ ,  $10\sim 25\text{mol}\%$  NaF, and  $1\sim 6\text{mol}\%$   $\text{YF}_{3\text{SB}}$  wherein the sum of the above four components is  $95\sim 100\%$ . Since the glass has large temperature difference between the glass transition temperature and the crystallization temperature, and is thermally stable, it can be cast to a block having a large thickness. It has excellent light transmitting characteristics such as high transmittance of light from the visible light to the IR ray of about  $3\mu\text{m}$  wavelength and a flat transmitting spectrum. The glass is useful as the material of window or lens of an infrared apparatus or a material of an IR-transmitting optical fiber.

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